

WHAT IS CLAIMED IS:

*Subj* 1. A network apparatus for communicating multi-media information by mobile terminals, comprising:

5 an Internet interface means for establishing an interface with the Internet;

a mobile interface means for establishing an interface with a mobile network;

10 a protocol processing means for applying a protocol process to information which are processed by the Internet interface means and the mobile interface means;

an image information edit processing means for editing image information which are extracted by the protocol processing means into image information suitable for a mobile communication;

15 a storage unit for storing the image information which are edited by the image information edit processing means; and

a storage unit controlling means for controlling to store the image information in the storage unit and to read the stored image information.

20 2. A network apparatus according to claim 1, wherein the image information which are transmitted/received in respective interfaces of said Internet interface means, said mobile interface means, said protocol processing means, said image information edit processing means, and said storage unit 25 controlling means are communicated in a cellulated format.

3. A network apparatus according to claim 1, wherein  
said mobile interface means includes:

5 a mobile protocol reception processing means for  
receiving information from the mobile network and then informing  
the protocol processing means;

10 a mobile protocol transmission processing means for  
transmitting information from the protocol processing means and  
information from the storage unit controlling means to the mobile  
network via a transmission process; and

15 a transmission timing control processing means for  
informing the storage unit controlling means of a transmission  
timing so as to transmit the image information continuously every  
unit time,

20 whereby continuous reproduction of the image information  
for the mobile network can be achieved based on such information  
of the transmission timing to the storage unit controlling means.

4. A network apparatus according to claim 1, wherein

20 said Internet interface means includes:

an Internet protocol reception processing means for  
performing a communication process of the information received  
from the Internet and then informing the protocol processing  
means; and

25 an Internet protocol transmission processing means for

transmitting the information received from the protocol processing means to the Internet.

5. A network apparatus according to claim 4, wherein  
5 said Internet interface means includes an interface for  
cellulating the information to communicate communication  
information and the image information when the Internet protocol  
reception processing means and the Internet protocol transmission  
processing means communicate with the protocol processing means.

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6. A network apparatus according to claim 1, wherein  
said protocol processing means includes:

an Internet protocol address analysis processing means  
for analyzing that the information from the Internet interface  
15 means correspond to either of communication information and the  
image information;

an image information protocol processing means for  
executing a protocol process of the image information from the  
Internet protocol address analysis processing means;

20 a data reproduction processing means for processing the  
image information which are protocol-processed by the image  
information protocol processing means to reproduce original  
information; and

25 a communication network protocol processing means for  
protocol- processing the information supplied to the Internet and

the mobile network.

7. A network apparatus according to claim 1, wherein  
said image information edit processing means includes:

5 a reproduced data storage unit for storing the image  
information reproduced by the protocol processing means;

a received data managing means for managing  
writing/reading of reproduced data into/from the reproduced data  
storage unit; and

10 a reproduced data editing means for editing the  
reproduced data read from the reproduced data storage unit into  
a format which is suitable for the mobile terminal.

*Sub A2* > 8. A network apparatus according to claim 3, wherein

15 said mobile protocol transmission processing means includes:

an asynchronous information processing means for  
processing asynchronous communication information from the  
protocol processing means;

20 a synchronous information processing means for  
processing synchronous image information from the storage unit  
controlling means;

a transmission buffer for transmitting the information  
to the mobile network; and

25 an information write controlling means for controlling  
to write the image information from the synchronous information

processing means into the transmission buffer prior to communication information from the asynchronous information processing means,

whereby the image information processed by the

5 synchronous information processing means are transmitted to the mobile network prior to the communication information so as to allow continuous reproduction of the image information.

9. A network apparatus according to claim 1, wherein  
10 said storage unit controlling means includes:

an edit data split processing means for splitting edited information edited by the image information edit processing means into cellulated information to write them into the storage unit;

15 a storage unit managing means for managing reading process/ writing process from/into the storage unit;

a data storage processing means for instructing the storage unit managing means of writing of split data edited by the edit data split processing means; and

20 a data read processing means for instructing the storage unit managing means of reading in response to a reading timing instruction issued from the mobile interface means.

10. A network apparatus comprising:

25 a mobile interface means for establishing an interface with a mobile network in communication with the mobile network;

a protocol processing means for processing protocol of information supplied from the mobile terminal and processed by the mobile interface means;

a storage unit for storing image information; and

5 a storage unit controlling means for controlling to read image information stored in the storage unit;

wherein the image information read from the storage unit are supplied constantly to the mobile network to deliver broadcast.

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*Sub A3* 11. A network apparatus comprising:

a mobile interface means for establishing an interface with a mobile network in communication with the mobile network;

a protocol processing means for processing protocol of

15 image information from the mobile terminal;

an image information edit processing means for editing the image information into edited information suitable for the mobile terminal;

a storage unit for storing the edited information; and

20 a storage unit controlling means for controlling to store the edited information into the storage unit and to read stored edited information;

wherein the image information are communicated between the mobile terminals.

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12. A network apparatus comprising:

an image information conversion processing means for converting plural types of image information formats, which are handled by respective mobile terminals, into a common image information format, which can be handled commonly in communication with the mobile network.

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13. A network apparatus comprising:

a mobile interface means for establishing an interface 10 with a mobile network in communication with the mobile network; a protocol processing means for processing protocol of image information from the mobile terminal;

an image information conversion processing means for converting the image information into a common image information 15 format;

a storage unit for storing converted image information;

a storage unit controlling means for controlling to store the image information into the storage unit and to read stored 20 image information; and

an image information custom processing means for editing the image information read from the storage unit into the image information which are suitable for respective mobile terminals;

wherein the image information can be communicated between different types of mobile terminals.

14. A network apparatus comprising:

a mobile interface means for establishing an interface with a mobile network in communication with the mobile network;

5 a protocol processing means for processing protocol of image information from the mobile terminal;

a storage unit for storing the image information in a common image information format;

10 a storage unit controlling means for controlling to store the image information into the storage unit and to read stored image information; and

15 an image information custom processing means for editing the image information read from the storage unit into the image information which are suitable for respective mobile terminals;

wherein the image information read from the storage unit  
15 are supplied constantly to the mobile network to deliver broadcast.

15. A network apparatus for communicating multi-media information by mobile terminals, comprising:

20 an Internet interface means for establishing an interface with the Internet;

a mobile interface means for establishing an interface with a mobile network;

25 a protocol processing means for processing protocol of information which are processed by the Internet interface means

and the mobile interface means;

an image information conversion processing means for converting the image information extracted by the protocol processing means into a common image information format;

5 a storage unit for storing the image information converted by the image information conversion processing means;

a storage unit controlling means for controlling to store the image information into the storage unit and to read stored image information; and

10 an image information custom processing means for editing and processing the image information read by the storage unit controlling means to meet a mobile communication.

16. A network communication method applied to a network apparatus in a network for communicating multi-media information by mobile terminals, comprising the steps of:

interface-processing information between the Internet and the network apparatus;

20 interface-processing information between a mobile network and the network apparatus;

protocol-processing the information which are interface-processed;

edit-processing the image information which are extracted by protocol process to meet a mobile communication;

25 storing the image information which are subjected to edit

process; and

controlling storing of the image information and reading of stored image information.

5           17. A network communication method according to claim 16, wherein the image information which are transmitted/received are communicated in a cellulated format in an interface with the Internet interface means, an interface with the mobile interface means, an interface when the information which are interface-  
10 processed are protocol-processed, an interface when the image information extracted via the protocol process are edit-processed, and an interface when the image information are stored and stored image information are read.

15           18. A network communication method according to claim 16, wherein the step of interface-processing the information between the mobile network and the network apparatus includes the steps of:

20           receiving the information from the mobile network and then informing the protocol processing means;

transmitting the information from the protocol processing means and the information from the storage unit controlling means, which controls storage of the image information, via transmission process to the mobile network; and

25           informing the storage unit controlling means, which

controls storage and reading of the image information, of a transmission timing so as to transmit the image information continuously every unit time,

5 whereby continuous reproduction of the image information for the mobile network can be achieved based on such information of the transmission timing to the storage unit controlling means.

19. A network communication method according to claim 16, wherein the step of interface-processing between the Internet 10 and the network apparatus, includes the steps of:

performing a communication process of the information received from the Internet and then informing the protocol processing means; and

transmitting the information received from the protocol 15 processing means to the Internet.

*Sub A5* 20. A network communication method according to claim 19, wherein the step of interface-processing between the Internet and the network apparatus, includes the steps of:

20 cellulating communication information and the image information which are communicated between the protocol processing means and the Internet, when the information received from the Internet are communicated and transmitted to the protocol processing means and also the information received from the 25 protocol processing means are transmitted to the Internet.

21. A network communication method according to claim 16, wherein the step of protocol-processing the information being interface-processed, includes the steps of:

5           analyzing that the information which are interface-processed correspond to either of communication information and the image information to the mobile network;

              protocol-processing analyzed image information;

              processing the image information which are protocol-10 processed to reproduce original information; and

              protocol-processing the information supplied to the Internet and the mobile network.

22. A network communication method according to claim 15 16, wherein the step of edit-processing the image information which are extracted by protocol process to meet a mobile communication, includes the steps of:

              storing the image information reproduced by the protocol processing means;

20           managing writing/reading of reproduced image information; and

              editing read reproduced data into a format which is suitable for mobile communication.

25           23. A network communication method according to claim

18, wherein the step of transmitting the information from the protocol processing means and the information from the storage unit controlling means which controls storage of the image information via transmission process to the mobile network,

5 includes the steps of:

processing asynchronous communication information from the protocol processing means;

processing synchronous image information from the storage unit controlling means;

10 a transmission buffer for transmitting the information to the mobile network;

storing processed synchronous image information to be transmitted prior to processed asynchronous communication information; and

15 transmitting the processed synchronous image information to the mobile network;

whereby the image information processed by the synchronous information processing means are transmitted to the mobile network prior to the communication information so as to 20 allow continuous reproduction of the image information.

24. A network communication method according to claim

16, wherein the step of controlling storing of the image information and reading of stored image information, includes the 25 steps of:

splitting edited data which are obtained by editing the image information extracted by the protocol process to meet the mobile communication so as to store them;

5 processing storing and reading of edited data by the storage unit managing means;

instructing the storage unit managing means to write edited split data; and

10 instructing the storage unit managing means of reading in response to a reading timing instruction issued from the mobile interface means.

25. A network communication method in communication with a mobile network, comprising the steps of:

15 interface-processing information between a network apparatus and the mobile network;

protocol-processing information which are supplied from the mobile terminal and interface-processed;

reading image information stored in a storage unit at a predetermined timing based on the information from the mobile 20 terminal; and

transmitting read image information to the mobile network;

wherein the image information read from the storage unit are supplied constantly to the mobile network to deliver 25 broadcast.

26. A network communication method in communication with a mobile network, comprising the steps of:

5 interface-processing information between a network apparatus and the mobile network;

protocol-processing information which are supplied from the mobile terminal and interface-processed;

10 editing the image information being protocol-processed into edited information suitable for the mobile terminal;

storing the edited information; and

15 controlling storing and reading of the edited information;

wherein the image information are communicated between the mobile terminals.

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27. A network communication method in communication with a mobile network, comprising the steps of:

protocol-processing information which are supplied from the mobile terminal and interface-processed; and

20 converting plural types of image information formats, which are protocol-processed and handled by respective mobile terminals, into a common image information format, which can be handled commonly.

25 *SWP* 28. A network communication method in communication

with a mobile network, comprising the steps of:

interface-processing information between a network apparatus and the mobile network;

protocol-processing information which are supplied from 5 the mobile terminal and interface-processed;

converting plural types of image information formats into a common image information format;

storing converted image information; and

reading stored image information and then editing them 10 into the image information which are suitable for plural types of mobile terminals;

wherein the image information can be communicated between different types of mobile terminals.

15 29. A network communication method in communication with a mobile network, comprising the steps of:

interface-processing information between a network apparatus and the mobile network;

protocol-processing information which are supplied from 20 the mobile terminal and interface-processed;

providing a reading instruction and a reading timing to read stored image information in a common image information format;

editing read image information into the image information 25 which are suitable for respective mobile terminals; and

broadcasting edited image information by supplying them constantly to the mobile network.

30. A network communication method applied to a network 5 apparatus in a network for communicating multi-media information by mobile terminals, comprising the steps of:

interface-processing information between the Internet and the network apparatus;

10 interface-processing information between a mobile network and the network apparatus;

protocol-processing the information which are interface-processed;

converting the image information extracted by the protocol process into a common image information format;

15 storing the image information which are converted into the common image information format; and

reading stored image information and then custom-processing them.